Translating Mixed-Method Research into a TV Documentary Educating Mature Drivers

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Center for Transportation Studies Research Conference
April 2010
Statement of the Problem and Purpose

- Driving is linked to participation and health (Banister & Bowling, 2004)
- The number of drivers age 65+ will increase markedly in 2010.
- Driving skills are susceptible to changes in functions linked to aging. Crashes and fatal crashes increase starting at age 70 and markedly after 80 (Insurance Institute for Highway Safety, 2008; Langford & Koppel, 2006)
- Most of the injuries and fatalities are to seniors themselves.
- Older driver tend to self-regulate (Insurance Institute for Highway Safety, 2008)
- Decision-making about driving cessation is not well understood (Kostyniuk & Shope, 2003; Whitehead et al. 2006)
Difference in the Number of Licenced Drivers in Minnesota Between 1998 and 2008

Age-Group

- 15-19
- 20-24
- 25-29
- 30-34
- 35-39
- 40-44
- 45-49
- 50-54
- 55-59
- 60-64
- 65-69
- 70-74
- 75-79
- 80-84
- 85+

Motor vehicle crash deaths per 100,000 people by age and gender, 2008
Education Through a TV Documentary and DVD on Older Drivers

- MGS is organization involved in linking research with practice in aging in MN. [www.mngero.org](http://www.mngero.org)
- We partnered with TPT to develop educational documentary on solutions to older driver safety and community mobility issues
- Involved many other sponsoring partners, including MnDOT, DPS, AAA, Board on Aging and MN Partnership for Safe Mobility
- I lead the project including current educational outreach efforts linked to the DVD distribution.
- Existing research as well as own program of research in Minnesota, with Masters OT students at St. Catherine University, informed the content of the...
Understanding driving cessation first involves understanding the meaning and value of driving for seniors.

Occupational science (OS) underlies OT and is the study of the meaning of everyday activities (Christiansen & Townsend, 2010), including constraints to participation, and adaptation to transition.

Occupational therapists (OT) are involved in helping curtail constraints to occupational participation.

OT intervention methods include education, remediation and compensation, as well as environmental modifications.
Some Models for Driving and Community Mobility Education

- **Precede-Proceed Model of Health Promotion** (Classen et al. 2006).
  - Focuses on risk and protective factors for older driver safety including predisposing, reinforcing and enabling factors, both personal and at systems level.

- **Person-Environment-Occupation (PEO) model as applied to elderly public transit bus users** (Broome et al., 2009).
  - Considers factors impacting ability to use buses include environment (i.e. bus design, service provision) and personal (i.e. knowledge, attitudes)

- **Transtheoretical Model of change** (TTM) as applied to the driving cessation decision (Dungan, 2006).
  - Stages are: Precontemplation, contemplation, preparation, action, maintenance
Some Facts about Older Adult Driving and Cessation

- Age-related changes in vision, motor function and cognition impact driving performance (Johnson, 2002; Liddle & McKenna, 2003)
- Curtailment is part of trajectory to cessation (Johnson, 2003, Mann 2005)
- Cessation process can be sudden. I.e. medical condition, medication use, accident or cost (McGwin et al. 2000; Adler & Rottunda, 2006)
- The greatest crash risk are intersections (Langford & Koppel, 2006)
- Gender differences: Men drive longer and tend to stop suddenly, women may stop too soon (Dellinger et al., 2001, Dobbs & Dobbs, 2000)
- Availability of transportation impacts driving safety and cessation trajectory: rural seniors drive longer (Johnson, 2002)
Overall Objectives of our Program of Research

- Describe the decision-making process for driving decisions
- Understand how it is linked to valued occupations (destinations)
- Determine which resources are known to, and used by seniors
- Describe adaptation process to driving cessation
- Compare rural and urban seniors
- **Overall Goal**: Identify issues and needs of older drivers in rural and urban Minnesota to inform intervention.
Mixed Model Design

- In mixed model designs, “each phase of the investigation is dependent on the finding, conceptual development or material that was generated in a previous phase”. (Tashakkori and Teddlie, 1998)
- They describe “Type VIII Sequential Mixed Model Studies” designs in which a quantitative phase (QUAN) alternates with a qualitative phase (QUAL)
- Creswell (2007) calls “Multiple Study Mixed Methods Research” the design in which each study’s results inform the next study.
Sequence of Studies (Masters’ theses)

- QUAN small and large rural: Chave, K. S. (2005) Driving Cessation and level of participation in rural seniors.
Love of Car: Transportation as We Age

“We followed Dylan's songs all the way West”

Robert Bly
Tools and Demographics

- **Tools**: Survey developed for QUAN study. QUAL Interview guide based on survey. Same tools for all studies

- **Number and Age of Participants**
  - QUAN study 1: Urban $N = 25$, $M = 79.76$, $SD = 3.92$
    - Rural $N = 25$, $M = 80.24$, $SD = 3.64$
  - QUAN Study 2: Small Rural: $N = 15$, $M = 78.33$, $SD = 7.09$
    - Large Rural: $N = 22$, $M = 77.95$, $SD = 6.83$
  - QUAL study: Urban: $N = 10$, $M = 83.2$, $SD = 7.1$
    - Rural: $N = 15$, $M = 84.20$, $SD = 5.69$

- **Variety of living situation**
  - Rural and urban, own house and apartment, gender, SES

- **IMPLICATIONS FOR EDUCATIONAL DOCUMENTARY**:
  - Title “As We Age”: Emphasize the “We”: All of us are affected
VALUE OF DRIVING AS AN OCCUPATION
Value of Driving as an Occupation

- Qualitative results: Driving overwhelmingly, although not universally valued as an occupation.
  - Morgan- “At that time gas was not that expensive you know, and you could go out and drive around and, and it was, it was fun and I enjoyed it”. (92, urban)
  - Lucy- “I guess I always hated going to Fairmont. It seemed like such a long time before I got there, I guess I was unsure of myself.” (651)

- IMPLICATION FOR DOCUMENTARY
  - Title: “Love of Car”: Testimonies about meaning of driving
Driving Valued as Independent Access to Various Occupations

- Quantitative study: The three most valued destinations for both urban and rural elders:
  - Attending medical appointments, religious or spiritual activities and visiting family and friends in their home.
- Significant differences between urban and rural seniors:
  - Outdoor recreation was rated as more important by urban seniors and shopping was rated as more important by rural seniors.

- Qualitative study: Value of independent access
  - Donna- “What made driving so enjoyable is that you are free to do what you want.” (61)
  - Carol: “It’s not easy to stop driving you know, driving is very much a part of your independence.” (275, rural)
• IMPLICATIONS FOR EDUCATIONAL DOCUMENTARY

• Acknowledge senior audience’s desire for continued participation when making driving and community mobility decisions.
  
  • Include discussion of access to a number of activities, including shopping and going to church (Juan)

• Provide information on how to drive longer safer
  
  • Physical activity: Mention research linking exercise and physical fitness to longer driving years
  
  • Drive Sharp and other tools to improve cognition and visual attention
  
  • CarFit demonstration as way to reduce injury in case of a crash

• Car and road design for an aging society: Expert
REASONS FOR DRIVING CESSATION
# Main Reason for Driving Cessation

<table>
<thead>
<tr>
<th>Reason</th>
<th>Urban</th>
<th>Rural</th>
<th>$X^2$</th>
<th>$p$</th>
<th>df</th>
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<tbody>
<tr>
<td>NA</td>
<td>12%</td>
<td>0%</td>
<td></td>
<td></td>
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<tr>
<td><strong>Health</strong></td>
<td>40%</td>
<td>48%</td>
<td></td>
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<tr>
<td>Expense</td>
<td>20%</td>
<td>4%</td>
<td></td>
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<tr>
<td>Safety</td>
<td>8%</td>
<td>16%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Moved</td>
<td>4%</td>
<td>16%</td>
<td></td>
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<tr>
<td>Advice</td>
<td>4%</td>
<td>8%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accident</td>
<td>12%</td>
<td>8%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>100%</td>
<td>100%</td>
<td>234.6</td>
<td>0.000***</td>
<td>24</td>
</tr>
</tbody>
</table>

$N = 50$
Reasons for Cessation:
Some Qualitative Results

- Age changes in function were considered in driving cessation decision.
  
  Jane- “I have lost a number of inches in height… and I couldn’t see [laugh] over the hood or even the back and front of the car.” (33, 40)

- Most participants mentioned vision as primary reason.
  
  Hank- “I would be very adamant about having people check their vision very carefully because that seemed to be my main cause of, of making a decision to go without driving.” (245)
• Cognitive issues rarely mentioned

Sally-“It was dangerous for me to be on the street, I thought. And I was always afraid I was going to start thinking about something and forget where I was.” (31, 123).

• Cost of driving also factored in the decision to stop

Gert-“Well in the first place insurance was costly, and I had to go and get my driver's license again… I live on a limited income.” (72)
## Cessation Trajectory Urban vs. Rural

<table>
<thead>
<tr>
<th></th>
<th>Urban</th>
<th>Rural</th>
<th>$X^2$</th>
<th>$p$</th>
<th>df</th>
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<tbody>
<tr>
<td>Gradual</td>
<td>68% (n = 17)</td>
<td>48% (n = 12)</td>
<td></td>
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<tr>
<td>Sudden</td>
<td>32% (n = 8 )</td>
<td>52% (n = 13)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>100% (n = 25)</td>
<td>100% (n = 25)</td>
<td>40.01</td>
<td>0.021*</td>
<td>24</td>
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</table>
Driving Cessation Trajectory
Qualitative Results

- Driving curtailment to safer conditions was evident, particularly in women

  Helen-“I only drove inside town... Oh, I never liked to drive after dark.” (15)

- Men tended to stop driving after accidents while women were worried about potential accident

  Hank-“I inadvertently bumped a pedestrian in a crosswalk. The pedestrian fell and broke both wrists.” (38)

  Donna-“I read in the papers about older people having accidents; I just get kind of sick. There’s that guy out in California he’s in his 80’s also and drove into a place where they were selling vegetables and fruits and stuff
IMPLICATIONS FOR EDUCATIONAL DOCUMENTARY:

- Describe age-changes affecting driving safety
  - Occupational therapist experts: Elin Schold-Davis OTR from AOTA, Connie Shaffer, OTR from Courage Center
- Focus on vision as issue, while mentioning other changes
  - Dr. Samuelson from Philips Eye Institute as expert
  - Juan (73) stopped driving due to glaucoma
- Curtailment modeled as safety strategy
  - Josie (91 years old) who has cataract does not drive at night or on highways.
- Highlight gender differences in risk
  - Safety statistics separating risk for men and women
DECISION-MAKING ABOUT DRIVING
CESSATION
Decision-Making about Cessation

- Self-decision was most prominent in the decision-making process. The vast majority of participants insisted on having made the decision themselves.

  Bea-“Well first of all I was the one who decided to stop driving, no one ever told me I had to, I didn’t want it to come to that.” (23)

- Only a few participants described others deciding for them:

  Mary-“My kids all came over and took the car away.” (45)

- Physicians and other professionals rarely mentioned as help

  Carol-“I think he took the coward’s way out, like doctors do. He confided in my daughter. I can’t really remember anything being said about it at least not to me.” (141)

- Driving cessation process is influenced by family

  Gert-“They [family] didn’t want me driving out there...”
IMPLICATIONS FOR EDUCATIONAL DOCUMENTARY

- Show available resources to help seniors and families make informed driving and cessation decisions
  - List of warning signs
  - *Roadwise Review* self-screening tool (AAA)
  - Older driver evaluation (i.e. Chris Tripp, OTR at Sister Kenny; Connie Shaffer, OTR, CDRS, at Courage Center)
- Show examples of services providing transition counseling
  - Annette Sandler at Jewish Family and Children Services
  - Connie Shaffer at Courage Center
- Model transition paths through senior stories
  - Josie with older driver safety courses and decision-making
ACTIVITY PARTICIPATION FOLLOWING CESSATION
Examples of Decreased Participation Following Driving Cessation, Rural vs. Urban Minnesota. (N = 50)

<table>
<thead>
<tr>
<th>Activity</th>
<th>Rural $t$</th>
<th>$p$&lt;</th>
<th>Urban $t$</th>
<th>$p$&lt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Visiting family and friends</td>
<td>-5.22</td>
<td>.000</td>
<td>-7.8</td>
<td>.000</td>
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<tr>
<td>Medical appointments</td>
<td>-9.87</td>
<td>.000</td>
<td>-7.97</td>
<td>.000</td>
</tr>
<tr>
<td>Out of home entertainment</td>
<td>-4.28</td>
<td>.000</td>
<td>-7.69</td>
<td>.000</td>
</tr>
<tr>
<td>Grocery shop</td>
<td>-3.44</td>
<td>.000</td>
<td>-8.23</td>
<td>.000</td>
</tr>
<tr>
<td>Volunteer/work</td>
<td>-2.52</td>
<td>.02</td>
<td>-2.25</td>
<td>.04</td>
</tr>
<tr>
<td>Outdoor activity</td>
<td>-2.82</td>
<td>.01</td>
<td>-3.07</td>
<td>.005</td>
</tr>
<tr>
<td>Church</td>
<td>NS</td>
<td>NS</td>
<td>-3.09</td>
<td>.005</td>
</tr>
</tbody>
</table>
Change in Participation Following Cessation: Some Qualitative Results

- Decreased participation in valued out-of-home occupations

Teddy (urban)- *I stopped going to the retired teachers support group… I stopped going to the grocery and shopping. [...] I can't go out with the guys to lunch or things like that, because unless they pick me up I can't do it then. It is true for shopping and other important things like recreation.* (51, 56)

- Loss in control over timing of occupations

Hank (rural)- *“Well no it’s just you have to gear yourself to the fact that you just can’t drive. You just have to be geared to wait. You learn a new experience of the word wait because things don’t always work out for another*
IMPLICATIONS FOR DOCUMENTARY

- Emphasize the importance of planning for car-free years, since they will last 7 to 10 years on average.
- Feature a senior (Juan) who stopped driving but is still active to provide the message that it is possible to continue participation.
- Participation is linked to the use of available transportation.
TRANSPORTATION AFTER CESSATION
Transportation after Driving Cessation: Some Quantitative Results:

- Highest (>80%) reliance on family
- Reliance on friends is greater in rural than urban, but still much lower than reliance on family (< 30%)
- Use of formal transportation (including senior housing vans) is higher in urban than rural (80 % of urban participants)
- Use of formal transportation is inconsistent in rural areas and depends on available transportation
  - One rural study shows 60% of participants having used formal transportation,
  - The other rural study (medium and small rural area) reports only 5% use of formal transportation
Transportation after Driving Cessation: Some Qualitative Results

- Primary reliance on family and friends sources of transportation
- Both rural and urban seniors concerned over being a burden

Helen- “I just don’t want to bother people and it’s hard.” (139)

Carol- “You don’t like to ask someone all the time for a ride, you just stay home.” (185)

- Haphazard search for information on formal transportation common

Gert (rural)-“No. It isn't easy [to find out about transportation]… You have to call and know where to call. There was usually in the paper, […] and you could call at this time and that time, but there isn’t much else.”
IMPLICATIONS FOR EDUCATIONAL DOCUMENTARY

- Educate about senior transportation solutions: Mark Hoisser (DARTS) and Annette Sandler (JFCS) as experts.
- Inform about community mobility training: Toni Elia from Metro Transit as expert
- Interview with volunteer drivers about their enjoyment in providing rides.
- Feature seniors using alternative transportation to access a number of locations (Juan, rural seniors)
- Provide the information about where to call to find out about available transportation (Senior LinkAge Line 1-800-333-2433 and www.mnhelp.info)
Educational Outreach of “Love of Car: Transportation as we Age”

- Companion discussion guide with list of resources developed and posted on the MGS website at [www.mngero.org](http://www.mngero.org)
- Documentary streaming online on MGS website
- Periodic Broadcast of documentary on *tpt* -MN and *tpt* - Life channels (see [www.tpt.org](http://www.tpt.org) for show times)
- More than 1000 DVDs distributed to places such as older driver safety courses, senior centers, Area Agencies on Aging, College and Universities, libraries etc
- Described as resources at multiple statewide, nationwide and world-level conferences
- Use in educational course with older drivers by St. Kate students.
Thank you
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References: See separate Handout
Love of Car Excerpts: Chris Tripp at Sister Kenny, and Josie in Atwater.